

REMARKS

Applicants respectfully request consideration of this application. Claims 1 – 6, 8, 9, 11-13, 15-19, 21 – 24, 26, 28, 32, and 34 have been rejected under 35 U.S.C. § 102(b) as being anticipated by U.S. Patent No. 5,693,043 of Kittrell et al. (hereinafter “Kittrell”). Claims 15, 21, and 28 – 30 have been rejected under 35 U.S.C. § 102(b) as being anticipated by U.S. Patent 5,601,087 of Gunderson (hereinafter “Gunderson”).

Claims 4, 10, 14, 20, 25, 27, 31, 33, and 35 have been rejected under 35 U.S.C. § 103(a) as being unpatentable over Kittrell as applied to claims 1, 15, 22, 26, 28, 32, and 34 and further in view of U.S. Patent 6,498,941 B1 of Jackson (hereinafter “Jackson”). Claims 1, 5, 7, and 36 – 39 have been rejected under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent 5,582,171 of Chornenky et al. (hereinafter “Chornenky”) and in view of U.S. Patent 6,445,939 B1 of Swanson et al. (hereinafter “Swanson”).

Claims 1, 15, 28, 32, 34, and 36 have been amended to define more properly pre-existing claim limitations. The amendments are supported by the specification and no new matter has been added. No claims have been canceled. Claims 40 – 47 have been added. The new claims are supported by the specification and no new matter has been added. As such, claims 1 – 47 remain pending in this application.

35 U.S.C. § 102(b)

Amended independent claim 1 provides:

An apparatus comprising:

an intravascular device to perform a therapeutic treatment; and

at least one sheathed optical fiber disposed through the intravascular device, the optical fiber configured to provide diagnostic information before and after the therapeutic treatment.

(emphasis added)

Kittrell discloses a laser catheter 10 that contains a set of nineteen optical fibers,

consisting of a central optical fiber 20a, a first ring of six optical fibers 20b,b', and a second ring of twelve optical fibers 20c,c'. Each optical fiber is composed of a core 22, a cladding 24 with lower index material than the core 22, and a protective buffer 26 which may or may not extend to the distal end of the fiber. The core 22 and cladding 24 are fused silica or glass or fluorite glass. (Kittrell, col. 8, lines 3 – 18, and FIGS. 1 – 3). The distal ends of the optical fibers 20a-c' are secured by a plug 11 formed of epoxy which is molded around the optical fibers 20a-c'. The molded epoxy plug 11 has an optically ground and polished surface 15. The optically polished distal ends 23 of optical fibers 20a-c' provide an exit surface for the laser beam or diagnostic light beam 29. (Kittrell, col. 8, lines 34 – 44, and FIG. 1). Nothing in Kittrell teaches a sheathed optical fiber disposed through the laser catheter.

In contrast, amended independent claim 1 includes the limitation of “at least one sheathed optical fiber disposed through the intravascular device.” Therefore, Applicants respectfully submit that claim 1 is not anticipated by Kittrell under 35 U.S.C. § 102(b) and respectfully request the withdrawal of the rejection of the claim. Claims 2 – 6, 8, 9, and 11 – 13 depend either directly or indirectly from independent claim 1, and thus also include the limitation of “at least one sheathed optical fiber disposed through the intravascular device.” As such, Applicants respectfully submit that claims 2 – 6, 8, 9, and 11 – 13 are also not anticipated by Kittrell under 35 U.S.C. § 102 and respectfully request the withdrawal of the rejection of the claims.

Amended independent claim 15 provides:

A catheter comprising:

a catheter shaft having an elongated outer member disposed about an tubular inner member and an intraluminal gap extending longitudinally between the outer member and the inner member; and

at least one sheathed optical fiber disposed within the

intraluminal gap, the catheter capable of both diagnostic and therapeutic purposes. (emphasis added)

Kittrell discloses a laser catheter 10 that contains a set of nineteen optical fibers, consisting of a central optical fiber 20a, a first ring of six optical fibers 20b,b', and a second ring of twelve optical fibers 20c,c'. Each optical fiber is composed of a core 22, a cladding 24 with lower index material than the core 22, and a protective buffer 26 which may or may not extend to the distal end of the fiber. The core 22 and cladding 24 are fused silica or glass or fluorite glass. (Kittrell, col. 8, lines 3 – 18, and FIGS. 1 – 3). The distal ends of the optical fibers 20a-c' are secured by a plug 11 formed of epoxy which is molded around the optical fibers 20a-c'. The molded epoxy plug 11 has an optically ground and polished surface 15. The optically polished distal ends 23 of optical fibers 20a-c' provide an exit surface for the laser beam or diagnostic light beam 29. (Kittrell, col. 8, lines 34 – 44, and FIG. 1). Nothing in Kittrell teaches a sheathed optical fiber disposed within an intraluminal gap.

Gunderson discloses a single optical fiber 20 is contained within a main tube 12. The optical fiber 20 extends past the distal end of the main tube 12, where it is threaded through a second hollow tube 14. The outside diameter of tube 14 is attached to the inside diameter of wire 12 using a welded or brazed joint or any other suitable method of fastening the tube 14 to wire 12. Welding typically is used to connect tube 14 to wire 12 because the preferred versions of both are fabricated from stainless steel. The optical fiber 20 also extends past the distal end of tube 14 and through the interior of hollow, cylindrical coil 16. Coil 16 is fitted over tube 14 and has an inner diameter that is substantially equal to the outer diameter of tube 14. (Gunderson, col. 5, lines 34 – 47, and FIG. 1). Nothing in Gunderson teaches a sheathed optical fiber disposed within an intraluminal gap.

In contrast, amended independent claim 15 includes the limitation of “at least one sheathed optical fiber disposed within the intraluminal gap.” Therefore, Applicants

respectfully submit that claim 15 is not anticipated by Kittrell or Gunderson under 35 U.S.C. § 102(b) and respectfully request the withdrawal of the rejection of the claim. Claims 16 – 19 and 21 depend either directly or indirectly from independent claim 15, and thus also include the limitation of “at least one sheathed optical fiber disposed within the intraluminal gap.” As such, Applicants respectfully submit that claims 16 – 19 and 21 are also not anticipated by Kittrell or Gunderson under 35 U.S.C. § 102 and respectfully request the withdrawal of the rejection of the claims.

Independent claim 22 provides:

A catheter comprising:

a catheter shaft having a tubular inner member coupled to an elongated outer member, the catheter capable of both diagnostic and therapeutic purposes;

an expandable member coupled to a distal portion of the catheter shaft; and

at least one optical fiber coupled to the expandable member.

(emphasis added)

Kittrell discloses a balloon 146 to provide an anchor point that can be incorporated into the guide catheter 142, and the laser catheter 10 rotated inside it. A balloon 176 on a rotary joint will allow rotation of the laser catheter 10 without it shifting. An annulus 173 is cut into catheter body 16, and sleeve 174 in one or two parts is installed in the groove. Balloon 176 is attached to the sleeve 174, which has a ring of openings 175 to allow fluid to flow from lumen 172 to inflate the balloon. The fluid will also lubricate the annular space 173 between the sleeve 174 and the catheter body 16, allowing easy rotary motion. An alternate embodiment of this laser catheter 10 for helical cutting uses an asymmetrical optical shield 12d. (Kittrell, col. 16, lines 11 – 30, and FIGS. 17 and 18). As such, the optical fibers are positioned within the guide catheter and are not attached to the balloon. Nothing in Kittrell teaches an optical fiber coupled to an expandable member.

In contrast, independent claim 22 includes the limitation of “at least one optical fiber coupled to the expandable member.” Therefore, Applicants respectfully submit that claim 22 is not anticipated by Kittrell under 35 U.S.C. § 102(b) and respectfully request the withdrawal of the rejection of the claim. Claims 23 – 24 depend either directly or indirectly from independent claim 22, and thus also include the limitation of “at least one optical fiber coupled to the expandable member.” As such, Applicants respectfully submit that claims 23 – 24 are also not anticipated by Kittrell under 35 U.S.C. § 102 and respectfully request the withdrawal of the rejection of the claims.

Amended independent claim 26 provides:

An apparatus comprising:

a catheter comprising a catheter shaft having a lumen therein;

a sheath slidably disposed over the catheter shaft, the catheter shaft and the sheath defining an intraluminal gap extending longitudinally therebetween; and

at least one optical fiber disposed within the intraluminal gap, the apparatus capable of both diagnostic and therapeutic purposes.

(emphasis added)

Kittrell discloses a laser catheter 10 that contains a set of nineteen optical fibers, consisting of a central optical fiber 20a, a first ring of six optical fibers 20b,b', and a second ring of twelve optical fibers 20c,c'. Each optical fiber is composed of a core 22, a cladding 24 with lower index material than the core 22, and a protective buffer 26 which may or may not extend to the distal end of the fiber. The core 22 and cladding 24 are fused silica or glass or fluorite glass. (Kittrell, col. 8, lines 3 – 18, and FIGS. 1 – 3). The distal ends of the optical fibers 20a-c' are secured by a plug 11 formed of epoxy which is molded around the optical fibers 20a-c'. The molded epoxy plug 11 has an optically ground and polished surface 15. The optically polished distal ends 23 of optical fibers 20a-c' provide an exit

surface for the laser beam or diagnostic light beam 29. (Kittrell, col. 8, lines 34 – 44, and FIG. 1). Nothing in Kittrell teaches a sheath slidably disposed over the catheter shaft.

In contrast, independent claim 26 includes the limitation of “a sheath slidably disposed over the catheter shaft.” Therefore, Applicants respectfully submit that claim 26 is not anticipated by Kittrell under 35 U.S.C. § 102(b) and respectfully request the withdrawal of the rejection of the claim.

Amended independent claim 28 provides:

A catheter comprising:

a catheter shaft having an inner member coupled to an outer member,
the catheter shaft having a lumen longitudinally therethrough;
an elongated member disposed within the lumen; and
at least one sheathed optical fiber disposed within the elongated member. (emphasis added)

Kittrell discloses a laser catheter 10 that contains a set of nineteen optical fibers, consisting of a central optical fiber 20a, a first ring of six optical fibers 20b,b', and a second ring of twelve optical fibers 20c,c'. Each optical fiber is composed of a core 22, a cladding 24 with lower index material than the core 22, and a protective buffer 26 which may or may not extend to the distal end of the fiber. The core 22 and cladding 24 are fused silica or glass or fluorite glass. (Kittrell, col. 8, lines 3 – 18, and FIGS. 1 – 3). The distal ends of the optical fibers 20a-c' are secured by a plug 11 formed of epoxy which is molded around the optical fibers 20a-c'. The molded epoxy plug 11 has an optically ground and polished surface 15. The optically polished distal ends 23 of optical fibers 20a-c' provide an exit surface for the laser beam or diagnostic light beam 29. (Kittrell, col. 8, lines 34 – 44, and FIG. 1). Nothing in Kittrell teaches a sheathed optical fiber disposed within an elongated member.

Gunderson discloses a single optical fiber 20 is contained within a main tube 12. The optical fiber 20 extends past the distal end of the main tube 12, where it is threaded through a second hollow tube 14. The outside diameter of tube 14 is attached to the inside diameter of wire 12 using a welded or brazed joint or any other suitable method of fastening the tube 14 to wire 12. Welding typically is used to connect tube 14 to wire 12 because the preferred versions of both are fabricated from stainless steel. The optical fiber 20 also extends past the distal end of tube 14 and through the interior of hollow, cylindrical coil 16. Coil 16 is fitted over tube 14 and has an inner diameter that is substantially equal to the outer diameter of tube 14. (Gunderson, col. 5, lines 34 – 47, and FIG. 1). Nothing in Gunderson teaches a sheathed optical fiber disposed within an elongated member.

In contrast, amended independent claim 28 includes the limitation of “at least one sheathed optical fiber disposed within the elongated member.” Therefore, Applicants respectfully submit that claim 28 is not anticipated by Kittrell or Gunderson under 35 U.S.C. § 102(b) and respectfully request the withdrawal of the rejection of the claim. Claims 29 – 30 depend either directly or indirectly from independent claim 28, and thus also include the limitation of “at least one sheathed optical fiber disposed within the elongated member.” As such, Applicants respectfully submit that claims 29 – 30 are also not anticipated by Kittrell or Gunderson under 35 U.S.C. § 102 and respectfully request the withdrawal of the rejection of the claims.

Amended independent claim 32 provides:

A system for sensing vessel and blood characteristics, the system comprising:

a data processing system; and

an apparatus coupled to the data processing system, the apparatus comprising an intravascular device to perform a therapeutic treatment and **at least one sheathed optical fiber disposed therethrough**, the optical fiber

configured to provide diagnostic information before and after the therapeutic treatment. (emphasis added)

Kittrell discloses a laser catheter 10 that contains a set of nineteen optical fibers, consisting of a central optical fiber 20a, a first ring of six optical fibers 20b,b', and a second ring of twelve optical fibers 20c,c'. Each optical fiber is composed of a core 22, a cladding 24 with lower index material than the core 22, and a protective buffer 26 which may or may not extend to the distal end of the fiber. The core 22 and cladding 24 are fused silica or glass or fluorite glass. (Kittrell, col. 8, lines 3 – 18, and FIGS. 1 – 3). The distal ends of the optical fibers 20a-c' are secured by a plug 11 formed of epoxy which is molded around the optical fibers 20a-c'. The molded epoxy plug 11 has an optically ground and polished surface 15. The optically polished distal ends 23 of optical fibers 20a-c' provide an exit surface for the laser beam or diagnostic light beam 29. (Kittrell, col. 8, lines 34 – 44, and FIG. 1). Nothing in Kittrell teaches an intravascular device with at least one sheathed optical fiber disposed therethrough.

In contrast, independent claim 32 includes an intravascular device with the limitation of “at least one sheathed optical fiber disposed therethrough.” Therefore, Applicants respectfully submit that claim 32 is not anticipated by Kittrell under 35 U.S.C. § 102(b) and respectfully request the withdrawal of the rejection of the claim.

Amended independent claim 34 provides:

A method of sensing vessel and blood characteristics, the method comprising:

inserting an apparatus into a vasculature of a patient, the apparatus comprising **a sheathed intravascular device to perform a therapeutic treatment** and at least one optical fiber disposed within the intravascular device, the optical fiber to transmit a light radiation signal therethrough;
advancing the apparatus to a location in the vasculature;

operating a data processing system coupled to the apparatus to transmit a plurality of light radiation signals to the location in the vasculature and a plurality of reflected light radiation signals to a detector in the data processing system; and

processing the plurality of reflected light radiation signals to determine vessel and blood characteristics. (emphasis added)

Kittrell discloses a laser catheter 10 that contains a set of nineteen optical fibers, consisting of a central optical fiber 20a, a first ring of six optical fibers 20b,b', and a second ring of twelve optical fibers 20c,c'. Each optical fiber is composed of a core 22, a cladding 24 with lower index material than the core 22, and a protective buffer 26 which may or may not extend to the distal end of the fiber. The core 22 and cladding 24 are fused silica or glass or fluorite glass. (Kittrell, col. 8, lines 3 – 18, and FIGS. 1 – 3). The distal ends of the optical fibers 20a-c' are secured by a plug 11 formed of epoxy which is molded around the optical fibers 20a-c'. The molded epoxy plug 11 has an optically ground and polished surface 15. The optically polished distal ends 23 of optical fibers 20a-c' provide an exit surface for the laser beam or diagnostic light beam 29. (Kittrell, col. 8, lines 34 – 44, and FIG. 1). Nothing in Kittrell teaches a sheathed intravascular device to perform a therapeutic treatment.

In contrast, independent claim 34 includes the limitation of “a sheathed intravascular device to perform a therapeutic treatment.” Therefore, Applicants respectfully submit that claim 34 is not anticipated by Kittrell under 35 U.S.C. § 102(b) and respectfully request the withdrawal of the rejection of the claim.

35 U.S.C. § 103(a)

Claims 1, 5, 7, and 36 – 39 have been rejected under 35 U.S.C. § 103(a) as being unpatentable over Chornenky and in view of Swanson. As discussed above, amended

independent claim 1 includes the limitation of “at least one sheathed optical fiber disposed through the intravascular device.”

Chornenky discloses a first directional coupler 22 which splits a beam of light into two separate beams; a sampling beam 24 and a reference beam 26. The light from the light source 20 is coupled to a first input 28 of the first directional coupler 22. The sampling beam 24 exits the first directional coupler 22 from a first output 30. The reference beam 26 exits the first coupler 22 from a second output 32. Both the sampling and reference beams 24 and 26 pass through optical fibers 34 and 36, respectively. Chornenky also discloses an imaging guidewire 40 having a proximal end 42 and a distal end 44. The imaging guidewire 40 includes a hollow elongated body 46 which has a throughbore 48. (Chornenky, col. 7, lines 28 – 42, and FIG. 1). Nothing in Chornenky teaches or suggests a sheathed optical fiber disposed through the intravascular device.

Swanson discloses miniature lenses for performing circumferential imaging of a sample. Two basic types of lenses are described: (1) lenses that use a radiused end and (2) lenses that use a longitudinal or radially varying index. The lenses are also coupled to a single-mode fiber. (Swanson, col. 5, lines 15 – 25, and FIGS. 2A – 2E). Nothing in Swanson teaches or suggests a sheathed optical fiber disposed through the intravascular device. As such, Swanson fails to cure the deficiency of Chornenky.

It is respectfully submitted that Swanson and Chornenky do not teach or suggest a combination with each other. Applicants respectfully submit that it would be impermissible hindsight, based on Applicants' own disclosure to combine Swanson and Chornenky.

Applicants also respectfully submit that there is no motivation to combine Swanson and Chornenky. The Office Action states, “It would have been obvious to one of ordinary skill in the art, at the time the invention was made to adapt Swanson's teaching to Chornenky's device such that the size of the catheter decreased, while still allowing the diagnostic catheter to obtain information all around the vasculature.” (Office Action dated

12/04/2003, page 4). Here, the Office Action merely states an advantage of substituting the stent-deployment use of Swanson into the device of Chornenky without explaining what specific understanding or technological principle within the knowledge of one of ordinary skill in the art would have suggested the combination.

Even if Swanson and Chornenky were combined, the combination would still not result in the limitations of claim 1. In particular, Swanson and Chornenky do not include the limitation of "at least one sheathed optical fiber disposed through the intravascular device." As Swanson and Chornenky, alone or in combination, do not teach all the limitations of claim 1, the combination cannot be interpreted to disclose the limitations of claim 1. Therefore, Applicants respectfully request the withdrawal of the rejection of dependent claim 1 under 35 U.S.C. § 103(a) over the combination. As claims 5 and 7 depend from claim 1, claims 5 and 7 are also not unpatentable under 35 U.S.C. § 103(a) over the combination of Swanson and Chornenky.

Amended independent claim 36 provides:

A method for treating intravascular conditions, the method comprising:

inserting a balloon catheter into a vasculature of a patient, the balloon catheter comprising an inflatable balloon disposed at the distal end of a catheter shaft and **at least one optical fiber coupled to the balloon catheter**, the balloon catheter further comprising an expandable metallic structure disposed at a distal end of the catheter shaft and substantially over the inflatable balloon;

advancing the balloon catheter to a location in the vasculature;

operating the balloon catheter and the at least one optical fiber within the vasculature;

operating a data processing system coupled to the balloon catheter to provide vessel and blood characteristics; and

inflating the inflatable balloon to expand the expandable metallic structure within the vasculature. (emphasis added)

Chornenky discloses a first directional coupler 22 which splits a beam of light into two separate beams; a sampling beam 24 and a reference beam 26. The light from the light source 20 is coupled to a first input 28 of the first directional coupler 22. The sampling beam 24 exits the first directional coupler 22 from a first output 30. The reference beam 26 exits the first coupler 22 from a second output 32. Both the sampling and reference beams 24 and 26 pass through optical fibers 34 and 36, respectively. Chornenky also discloses an imaging guidewire 40 having a proximal end 42 and a distal end 44. The imaging guidewire 40 includes a hollow elongated body 46 which has a throughbore 48. (Chornenky, col. 7, lines 28 – 42, and FIG. 1). Nothing in Chornenky teaches or suggests at least one optical fiber coupled to a balloon catheter.

Swanson discloses miniature lenses for performing circumferential imaging of a sample. Two basic types of lenses are described: (1) lenses that use a radiused end and (2) lenses that use a longitudinal or radially varying index. The lenses are also coupled to a single-mode fiber. (Swanson, col. 5, lines 15 – 25, and FIGS. 2A – 2E). Nothing in Swanson teaches or suggests at least one optical fiber coupled to a balloon catheter. As such, Swanson fails to cure the deficiency of Chornenky.

It is respectfully submitted that Swanson and Chornenky do not teach or suggest a combination with each other. Applicants respectfully submit that it would be impermissible hindsight, based on Applicants' own disclosure to combine Swanson and Chornenky.

Applicants also respectfully submit that there is no motivation to combine Swanson and Chornenky. The Office Action states, "It would have been obvious to one of ordinary skill in the art, at the time the invention was made to adapt Swanson's teaching to Chornenky's device such that the size of the catheter decreased, while still allowing the diagnostic catheter to obtain information all around the vasculature." (Office Action dated 12/04/2003, page 4). Here, the Office Action merely states an advantage of substituting the stent-deployment use of Swanson into the device of Chornenky without explaining what

specific understanding or technological principle within the knowledge of one of ordinary skill in the art would have suggested the combination.

Even if Swanson and Chornenky were combined, the combination would still not result in the limitations of claim 36. In particular, Swanson and Chornenky do not include the limitation of “at least one optical fiber coupled to the balloon catheter.” As Swanson and Chornenky, alone or in combination, do not teach all the limitations of claim 36, the combination cannot be interpreted to disclose the limitations of claim 36. Therefore, Applicants respectfully request the withdrawal of the rejection of dependent claim 36 under 35 U.S.C. § 103(a) over the combination. As claims 37 – 39 depend from claim 36, claims 37 – 39 are also not unpatentable under 35 U.S.C. § 103(a) over the combination of Swanson and Chornenky.

Claims 4, 10, 14, 20, 25, 27, 31, 33, and 35 have been rejected under 35 U.S.C. § 103(a) as being unpatentable over Kittrell as applied to claims 1, 15, 22, 26, 28, 32, and 34 and further in of Jackson.

Claims 4, 10, and 14 depend from independent claim 1 and thus include the limitation of “at least one sheathed optical fiber disposed through the intravascular device.” As discussed above, nothing in Kittrell teaches a sheathed optical fiber disposed through the laser catheter.

Jackson discloses a catheter 10 having a distal end 12 that extends from a hub or handle 14. Distal end 12 of catheter 10 is insertable into a patient. Hub 14 accommodates a fiber optic bundle which is connected to a light source 16 for imaging, a camera 18, a light source 20 for spectral analysis and an analyzer 22 for fluorescence spectrum analysis. Light source 16 and camera 18 are connected to the fiber optic bundle via a bifurcated imaging fiber 15a. Light source 20 and analyzer 22 are connected to the fiber optic bundle via a bifurcated imaging fiber 15b. A light source modulator 21 may also be connected to light source 20. Light sources 16 and 20 can be any continuous-wave signal or a high-

repetition-rate pulsed laser. Light source 20 is a modulated light diode or high powered laser light source. (Jackson, col. 3, lines 24 – 41, and FIG. 1). A light transmitting conduit 32 extends through catheter 30 toward a distal end 31 of catheter 30 and conduit 32 is housed within detection probe 34. Catheter 30 is coupled to or integrally formed with a hub 36 which accommodates fiber optic conduits 38 and 39. (Jackson, col. 4, lines 29 – 40, and FIG. 2). Nothing in Jackson teaches or suggests a sheathed optical fiber disposed through the laser catheter. As such, Jackson fails to cure the deficiency of Kittrell.

It is respectfully submitted that Kittrell and Jackson do not teach or suggest a combination with each other. Applicants respectfully submit that it would be impermissible hindsight, based on Applicants' own disclosure to combine Kittrell and Jackson.

Applicants also respectfully submit that there is no motivation to combine Kittrell and Jackson. The Office Action states, "It would have been obvious to one of ordinary skill in the art, at the time the invention was made to adapt Jackson's teaching to Kittrell's device such that the diseased parts of the vasculature that contains atherosclerotic plaque could be detected." (Office Action dated 12/04/2003, page 4). Here, the Office Action merely states an advantage of substituting the catheter of Jackson into the device of Kittrell without explaining what specific understanding or technological principle within the knowledge of one of ordinary skill in the art would have suggested the combination.

Even if Kittrell and Jackson were combined, the combination would still not result in the limitations of claim 1. In particular, Kittrell and Jackson do not include the limitation of "at least one sheathed optical fiber disposed through the intravascular device." As Kittrell and Jackson, alone or in combination, do not teach all the limitations of claim 1, the combination cannot be interpreted to disclose the limitations of claim 1. Therefore, Applicants respectfully request the withdrawal of the rejection of dependent claims 4, 10, and 14 under 35 U.S.C. § 103(a) over the combination.

Claim 20 depends from independent claim 15 and thus includes the limitation of “at least one sheathed optical fiber disposed within the intraluminal gap.” As discussed above, neither Kittrell nor Jackson teach or suggest a sheathed optical fiber. As Kittrell and Jackson, alone or in combination, do not teach all the limitations of claim 15, the combination cannot be interpreted to disclose the limitations of claim 15. Therefore, Applicants respectfully request the withdrawal of the rejection of dependent claim 20 under 35 U.S.C. § 103(a) over the combination.

Claim 25 depends from independent claim 22 and thus includes the limitation of “at least one optical fiber coupled to the expandable member.” Neither Kittrell nor Jackson teach or suggest an optical fiber coupled to an expandable member. As Kittrell and Jackson, alone or in combination, do not teach all the limitations of claim 22, the combination cannot be interpreted to disclose the limitations of claim 22. Therefore, Applicants respectfully request the withdrawal of the rejection of dependent claim 25 under 35 U.S.C. § 103(a) over the combination.

Claim 27 depends from independent claim 26 and thus includes the limitation of “a sheath slidably disposed over the catheter shaft.” As discussed above, neither Kittrell nor Jackson teach or suggest a sheath. As Kittrell and Jackson, alone or in combination, do not teach all the limitations of claim 26, the combination cannot be interpreted to disclose the limitations of claim 26. Therefore, Applicants respectfully request the withdrawal of the rejection of dependent claim 27 under 35 U.S.C. § 103(a) over the combination.

Claim 31 depends from independent claim 28 and thus includes the limitation of “at least one sheathed optical fiber disposed within the elongated member.” As discussed above, neither Kittrell nor Jackson teach or suggest a sheathed optical fiber. As Kittrell and Jackson, alone or in combination, do not teach all the limitations of claim 28, the combination cannot be interpreted to disclose the limitations of claim 28. Therefore,

Applicants respectfully request the withdrawal of the rejection of dependent claim 31 under 35 U.S.C. § 103(a) over the combination.

Claim 33 depends from independent claim 32 and thus includes the limitation of “at least one sheathed optical fiber disposed therethrough.” As discussed above, neither Kittrell nor Jackson teach or suggest a sheathed optical fiber. As Kittrell and Jackson, alone or in combination, do not teach all the limitations of claim 32, the combination cannot be interpreted to disclose the limitations of claim 32. Therefore, Applicants respectfully request the withdrawal of the rejection of dependent claim 33 under 35 U.S.C. § 103(a) over the combination.

Claim 35 depends from independent claim 34 and thus includes the limitation of “a sheathed intravascular device to perform a therapeutic treatment.” As discussed above, neither Kittrell nor Jackson teach or suggest a sheathed device. As Kittrell and Jackson, alone or in combination, do not teach all the limitations of claim 34, the combination cannot be interpreted to disclose the limitations of claim 34. Therefore, Applicants respectfully request the withdrawal of the rejection of dependent claim 35 under 35 U.S.C. § 103(a) over the combination.


In conclusion, Applicants respectfully submit that in view of the amendments and arguments set forth herein, the applicable rejections have been overcome. If the allowance of these claims could be facilitated by a telephone conference, the Examiner is invited to contact Suk Lee at (408) 720-8300. If there are any additional charges, please charge our Deposit Account No. 02-2666.

If the allowance of these claims could be facilitated by a telephone conference, the Examiner is invited to contact Suk Lee at (408) 720-8300. If there are any additional charges, please charge our Deposit Account No. 02-2666.

Respectfully submitted,

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